

REMARKS

Initially, Applicant would like to express appreciation to the Examiner for the detailed Official Action provided.

However, Applicant notes that the Examiner has not acknowledged Applicant's Claim for Priority and receipt of the certified copy of the priority document. It is noted that the Patent Application Information Retrieval (PAIR) system on the U.S. Patent and Trademark Office website reflects receipt of Applicants' Claim for Priority and the certified copy of the priority document on January 24, 2006 in the instant application. Accordingly, the Examiner is requested to acknowledge receipt of Applicant's Claim for Priority and receipt of the certified copy of the priority document in the next Official Action.

Upon entry of the above amendment, claims 1 and 2 will have been amended. Accordingly, claims 1, 2, and 4-16 are currently pending. Applicants respectfully request reconsideration of the outstanding rejections and allowance of claims 1, 2, and 4-16 in the present application. Such action is respectfully requested and is now believed to be appropriate and proper.

Claims 1, 2, 8, and 15 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over LAI et al. (U.S. Pat. Pub. No. 2004/0079384) in view of POULOS et al. (U.S. Patent No. 5,279,314).

Although Applicant does not necessarily agree with the Examiner's rejection of claims 1 and 2 on this ground, nevertheless, Applicant has amended independent claims 1 and 2 to clearly obviate the above noted ground of rejection in order to expedite prosecution of the present application. In this regard, Applicant notes that LAI et al. and

POULOS et al. fail to teach or suggest the subject matter claimed in amended claims 1 and 2. In particular, claim 1, as amended, sets forth an electric dental flosser apparatus including, *inter alia*, “a drive shaft rotationally oscillatable about its own axis; a drive mechanism operable to rotationally oscillate the drive shaft about its own axis; a floss holder mounted on the drive shaft so as to be oscillated rotationally by the drive shaft; and a flosser element stretched on the floss holder; wherein the flosser element is held taut in a direction perpendicular to an axial direction of the drive shaft so as to pass across an extension line of the drive shaft”. Claim 2, as amended sets forth an electric dental flosser apparatus including, *inter alia*, “a drive shaft rotationally oscillatable about its own axis; a drive mechanism operable to rotationally oscillate the drive shaft about its own axis; a floss holder mounted on the drive shaft so as to be oscillated rotationally by the drive shaft, the floss holder comprising a forked floss holding portion having a proximal end portion and opposite distal end portions; and a flosser element stretched taut between the opposite distal end portions of the floss holding portion; wherein an intermediate portion of a line connecting an intermediate portion of the flosser element and the proximal end portion of the floss holding portion is positioned on an extension line of the drive shaft”.

This amendment is fully supported by the specification, including the claims and drawings, and no prohibited new matter has been added.

The present invention provides an electric dental flosser including a dental flosser body 2 with a cylindrical casing 11, a drive shaft 4 projecting from the end portion of the dental flosser body 2, and a floss holder 3 mounted on the drive shaft 4. The longitudinal axis of the drive shaft 4 is coaxial with the longitudinal axis of the dental flosser body 2,

as shown in figure 1B. The drive shaft 4 is rotationally oscillatable about its own axis, and the rotational motion about the motor shaft 15 is converted to *rotational oscillating motion about the drive shaft 4*. The floss holder 3 includes a curved neck portion 8 mounted on the drive shaft 4, and a floss holding portion. The neck portion 8 curves away from the proximal end portion of the floss holder 3 so that the neck portion 8 is spaced from the extension line A of the longitudinal axis of the drive shaft 4; and the floss holding portion 6 holds a flosser element 5 that extends in a direction perpendicular to the longitudinal axis of the drive shaft 4, and passes across the extension line A. Accordingly, the configuration of the electric dental flosser, including the shape of the neck portion 8 of the floss holder 3, positions the elements of the device so that the flosser element 5 is positioned on the extension line A of the drive shaft 4. When the motor 12 is driven, rotation of the motor shaft 15 causes *rotational oscillation of the drive shaft 4 about its longitudinal axis* and rotational oscillation of the floss holder 3, causing *rotational oscillation of both the floss holding portion 6 and the flosser element 5 about the extension line A* of the drive shaft 4.

This configuration of the electric dental flosser of the instant invention provides advantages and improvements over the prior art. For example, since the flosser element 5 extends in a direction perpendicular to the axis of the drive shaft 4 and passes across the extension line A, the distance between the extension line A and the distal end portions of the floss holding portion 6 is small. Thus, when the electric dental flosser apparatus 1 is in operation, the width C of oscillation of the distal end portions of the floss holding portion is reduced, compared with the conventional electric dental flossers. See particularly figure 3. This configuration provides the advantage that the opposite distal

end portions of the floss holding portion 6 will not interfere with the teeth and the internal walls of the mouth, improving the comfort and decreasing unpleasantness to the user, and accomplishing safe and effective flossing. Additionally, since the flosser element 5 is positioned to pass across the extension line A, the electric dental flosser 1 of the present invention also has the advantage that the intermediate portion of the flosser element is easily insertable between the teeth.

The LAI et al. publication teaches an electric dental flosser including a drive mechanism and a flosser holder, but fails to teach or suggest a drive shaft that oscillates about its own axis, and a drive mechanism that oscillates the drive shaft about its own axis. In this regard, the LAI et al. device includes a drive shaft 921 that spins eccentrically around the point 927. See particularly figure 11. The driving mechanism includes a first cylinder 923 with a de-centered pin 924, a second cylinder 925 with a slot 926, a rod 921, and a pin 927. The motor drives the first cylinder 923, thus orbiting the first cylinder 923 in a circle. The de-centered pin 924 slides in the slot 926, so that the second cylinder 925, the rod 921 and the coupler 910 *swing back and forth around the pin 927*. See particularly paragraph [0055]. Thus, the shaft 921 of LAI et al. is not rotationally oscillatable about its own axis, nor does the drive mechanism rotationally oscillate the shaft 921 about its own axis.

Therefore, the LAI et al. device does not include an electric dental flosser including, inter alia, “a drive shaft rotationally oscillatable about its own axis; a drive mechanism operable to rotationally oscillate the drive shaft about its own axis”, as set forth in amended claims 1 and 2.

Further, as recognized by the Examiner, LAI et al. also fails to teach or suggest the flosser element held in a perpendicular direction across an extension line of the drive shaft, an intermediate portion and an end portion of the flosser element positioned on an extension line of the drive shaft, and the floss holding portion being aligned.

The POULOS et al. patent is directed to an electric dental flosser including a drive shaft 100, a rotatable drive mechanism 70, and a floss holder 120.

The Examiner has taken the position that the POULOS et al. device includes a plurality of notch portions 122 (sic, 128) that may receive the floss strand 126 such that the floss strand 126 may be moved from one pair of notch portions to another, and therefore, the floss strand inherently may be held in a direction perpendicular to an axial direction of the drive shaft so as to cross an extension line of the drive shaft. The Examiner also refers to figures 25 and 26.

However, it is respectfully submitted that the POULOS et al. device does not include a plurality of notch portions 128 that receive the floss strand 126, as contended by the Examiner. In this regard, it is noted that in column 8, lines 37-53 and in column 9, lines 14-31, the POULOS et al. patent discloses that the notches 128 are provided to allow flexing of the floss tip 120. See figure 13A. The notches 128 relieve stress in the floss tip 120. Contrary to the Examiner's assertions, the notches 128 do not hold the floss strand 126. Moreover, the floss strand can not be moved between notches. Therefore, since the POULOS et al. device does not include notches that receive the floss strand and between which the floss strand may be moved, the POULOS et al. device also does not include a floss strand that is held in a direction perpendicular to the axial direction of the

drive shaft and that crosses an extension line of the drive shaft, as contended by the Examiner.

Further, as shown in the figures, the POULOS et al. device also does not include a drive shaft that is rotationally oscillatable about its own axis, and a drive mechanism that rotationally oscillates the drive shaft about its own axis. In particular, as shown in figure 4, the drive shaft 100 is positioned off-center of the midline A of the electric dental flosser. Since the motor shaft 35 is rotated about its own axis, and since the shaft 100 is mounted off-center of the motor shaft 35, the shaft 100 rotates about the axis of the motor shaft 35. Therefore, the shaft 100 is not rotationally oscillatable about its own axis, and the drive mechanism does *not* rotationally oscillate the shaft 100 about its own axis, as set forth in amended claims 1 and 2.

Therefore, the POULOS et al. patent fails to cure the deficiencies of the LAI et al. device, and even assuming, arguendo, that the teachings of LAI et al. and POULOS et al. have been properly combined, Applicants' claimed electric dental flosser would not have resulted from the combined teachings thereof.

Further, there is nothing in the cited prior art that would lead one of ordinary skill in the art to make the modification suggested by the Examiner in the rejection of claims 1 and 2 under 35 U.S.C. § 103(a) over LAI et al. in view of POULOS et al. Thus, the only reason to combine the teachings of LAI et al. and POULOS et al. results from a review of Applicants' disclosure and the application of impermissible hindsight. Accordingly, the rejection of claims 1 and 2 under 35 U.S.C. § 103(a) over LAI et al. in view of POULOS et al. is improper for all the above reasons and withdrawal thereof is respectfully requested.

Applicant submits that dependent claims 4-16, which are at least patentable due to their dependency from claims 1 and 2 for the reasons noted above, recite additional features of the invention and are also separately patentable over the prior art of record based on the additionally recited features. Accordingly, claims 4-16 are each separately patentable for these additional reasons.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejections, and an early indication of the allowance of claims 1, 2, and 4-16.

SUMMARY AND CONCLUSION

In view of the foregoing, it is submitted that the present amendment is proper and that none of the references of record, considered alone or in any proper combination thereof, anticipate or render obvious Applicant's invention as recited in claims 1, 2, and 4-16. The applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

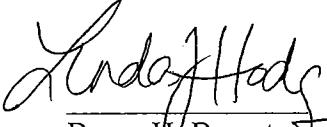
Accordingly, consideration of the present amendment, reconsideration of the outstanding Official Action, and allowance of the present amendment and all of the claims therein are respectfully requested and now believed to be appropriate.

Applicant has made a sincere effort to place the present application in condition for allowance and believe that he has now done so.

Any amendments to the claims which have been made in this amendment, which do not narrow the scope of the claims, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered cosmetic in nature, and to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should there be any questions, the Examiner is invited to contact the undersigned at the below listed number.

Respectfully Submitted,
Haruhiko NARUSE


Linda J. Hodge
Reg. #47,348
Bruce H. Bernstein
Reg. No. 29,027

November 6, 2009
GREENBLUM & BERNSTEIN, P.L.C.
1950 Roland Clarke Place
Reston, VA 20191
(703) 716-1191